

I claim:

14 (new) A method to treat or prevent a condition of lowered S-adenosyl-l-methionine
tissue and blood levels by increasing S-adenosyl-l-methionine levels in tissue and
blood, comprising administering to an animal in need thereof an effective amount of a
5 substantially optically pure (S,S)-S-adenosyl-l-methionine or a pharmaceutically
acceptable salt thereof or a defined non-racemic ratio of (S,S)-S-adenosyl-l-
methionine to (R,S)-S-adenosyl-l-methionine or pharmaceutically acceptable salts
thereof.

15 (new) The method according to claim 14 wherein the (S,S)-S-adenosyl-l-methionine
10 or a pharmaceutically acceptable salt thereof comprises at least 80.001 % by weight of
the S-adenosyl-l-methionine administered.

16 (new) The method according to claim 14 wherein the (S,S)-S-adenosyl-l-methionine
or a pharmaceutically acceptable salt thereof comprises at least 85.00% by weight of
the S-adenosyl-l-methionine administered.

15 17 (new) The method according to claim 14 wherein the (S,S)-S-adenosyl-l-methionine
or a pharmaceutically acceptable salt thereof comprises at least 90.00 % by weight of
the S-adenosyl-l-methionine administered.

18 (new) The method according to claim 14 wherein the (S,S)-S-adenosyl-l-methionine
or a pharmaceutically acceptable salt thereof comprises at least 96.999 % by weight of
20 the S-adenosyl-l-methionine administered.

19 (new) The method according to claim 14 wherein the condition to be treated is
selected from the group consisting of: ageing, ageing of the skin, Alzheimer's disease,
osteoarthritis, rheumatoid arthritis, cancer, conditions of hypomethylation,
mitochondrial diseases, hypomethylation of DNA and RNA, HIV/AIDS, anxiety,
25 attention deficit disorder and ADHD, sleep dysregulation, organ preservation,
dyslipidemias, excess sebum production, migraines, bile dysfunction, bile dysfunction
caused by pregnancy and use of contraceptive medications, depression, acute and
chronic liver disease, alcohol liver disease, hepatitis B and C, cirrhosis of the liver,

ischemic reperfusion injury, strokes, Parkinson's disease, memory disturbances, impaired memory, memory loss, pancreatitis, intrahepatic cholestasis, inflammation, pain, side effects of administration of chemotherapy, total parenteral nutrition induced liver disease, increased levels of tumor necrosis factor alpha, seborrhea, dermatitis, peripheral occlusive arterial disease, low glutathione levels, administration of neuroleptic drugs, administration of cyclosporin A, and asthma.

(new) The method of claim 14 wherein the condition to be prevented is selected from the group consisting of: ageing, ageing of the skin, Alzheimer's disease, osteoarthritis, rheumatoid arthritis, cancer, conditions of hypomethylation, mitochondrial diseases, hypomethylation of DNA and RNA, HIV/AIDS, anxiety, attention deficit disorder and ADHD, sleep dysregulation, organ preservation, dyslipidemias, excess sebum production, migraines, bile dysfunction, bile dysfunction caused by pregnancy and use of contraceptive medications, depression, acute and chronic liver disease, alcohol liver disease, hepatitis B and C, cirrhosis of the liver, ischemic reperfusion injury, strokes, Parkinson's disease, MS, memory disturbances, impaired memory, memory loss, pancreatitis, intrahepatic cholestasis, inflammation, pain, side effects of administration of chemotherapy, total parenteral nutrition induced liver disease, increased levels of tumor necrosis factor alpha, seborrhea, dermatitis, peripheral occlusive arterial disease, administration of neuroleptic drugs, administration of cyclosporin A, and asthma.

(new) The method of claim 14 wherein the route of administration of a substantially optically pure (S,S)-S-adenosyl-l-methionine or a pharmaceutically acceptable salt thereof or a defined non-racemic ratio of (S,S)-S-adenosyl-l-methionine to (R,S)-S-adenosyl-l-methionine or pharmaceutically acceptable salts thereof is chosen from the group consisting of topical, systemic, oral, intranasal, rectal, and transdermal.

(new) A method of claim 14 wherein an effective amount of the substantially optically pure (S,S)-S-adenosyl-l-methionine or a pharmaceutically acceptable salt thereof or a defined non-racemic ratio of (S,S)-S-adenosyl-l-methionine to (R,S)-S-adenosyl-l-

methionine or pharmaceutically acceptable salts thereof is administered to a warm-blooded animal to treat a condition of lowered anti-oxidant levels.

- 23 (new) A method of claim 14 wherein a salt of the substantially optically pure (S,S)-S-adenosyl-l-methionine or of a defined non-racemic ratio of (S,S)-S-adenosyl-l-methionine to (R,S)-S-adenosyl-l-methionine is a member selected from the group
5 consisting of salts of S-adenosyl-l-methionine with hydrochloric acid, sulfuric acid, p-toluenesulfonic acid, and 1,4-butanedisulphonic acid.

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